

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) An information distribution system comprising an information transmission apparatus for transmitting main information and an information reception apparatus for receiving the main information transmitted from the information transmission apparatus, the information reception apparatus being connected to the information transmission apparatus via a network, wherein

the information transmission apparatus generates first control information for making a request to the information reception apparatus for transmission of a result of a determination as to whether the information reception apparatus receives the main information and transmits the main information and the generated first control information via the network,
wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

the information reception apparatus, when receiving the main information and the first control information transmitted from the information transmission apparatus via the network, determines whether to receive the main information transmitted from the information transmission apparatus that has transmitted the received first control information and generates second control information indicating a result of the determination to transmit the generated second control information to the information transmission apparatus via the network; and

the information transmission apparatus receives the second control information transmitted from the information reception apparatus via the network, and prohibits the transmission of the main information to the information reception apparatus if the received second control information indicates a first determination result that the main information is not received or transmits the main information to the information reception apparatus via the network if the second control information indicates a second determination result that the main information is received,

wherein the information transmission apparatus comprising:

generation means for generating first control information for making a request to the information reception apparatus;

transmission means for transmitting the first control information to the information reception apparatus via the network;

reception means for receiving, via the network, second control information, the second control information indicating whether the information reception apparatus receives the main information; and

transmission control means,

for keeping the transmission means in a first state indicating that neither the main information nor the first control information is transmitted to the information reception apparatus;

for keeping the transmission means in the second state indicating that the transmission means is permitted to transmit the main information to the information

reception apparatus when the second control information indicates that no error has occurred in the received information;

for changing the second state of transmission means to a third state indicating that the transmission means is prohibited from transmitting the main information to the information reception apparatus,

wherein the transmission means is permitted to periodically transmit the first control information to the information reception apparatus, when the information reception apparatus does not receive the main information;

for changing the second state of transmission means to a fourth state indicating that the transmission means is permitted to transmit a multiplexed signal including the main information with an error packet and the first control information to the information reception apparatus via the network, when the second control information indicates that an error has occurred in the received information; and

for changing the fourth state of transmission means to the third state, when the second control information indicates that a predetermined amount of errors have occurred in the received information.

2. (Currently Amended) An information distribution method of an information distribution system including an information transmission apparatus for transmitting main information and an information reception apparatus for receiving the main information transmitted from the information transmission apparatus, the information reception apparatus

being connected to the information transmission apparatus via a network, the method comprising:

a first transmission step of generating, in the information transmission apparatus, first control information for making a request to the information reception apparatus for transmission of a result of a determination as to whether the information reception apparatus receives the main information and transmitting the main information and the generated first control information via the network,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a second transmission step of determining whether the main information transmitted from the information transmission apparatus that has transmitted the received first control information is received when the information reception apparatus receives via the network the main information and the first control information transmitted from the information transmission apparatus by the processing in the first transmission step, and generating second control information indicating a result of the determination to transmit the generated second control information to the information transmission apparatus via the network;

a first transmission control step of receiving in the information transmission apparatus via the network the second control information transmitted from the information reception apparatus by the processing in the second transmission step, and prohibiting the transmission of the main information to the information reception apparatus if the received second control information indicates a first determination result that the main information is not

received or permitting the main information to be transmitted to the information reception apparatus via the network if the second control information indicates a second determination result that the main information is received;

a second transmission control step of keeping the transmission apparatus in a first state indicating that neither the main information nor the first control information is transmitted to the information reception apparatus;

a third transmission control step of keeping the transmission apparatus in the second state indicating that the transmission apparatus is permitted to transmit the main information to the information reception apparatus when the second control information indicates that no error has occurred in the received information;

a fourth transmission control step of changing the second state of transmission apparatus to a third state indicating that the transmission apparatus is prohibited from transmitting the main information to the information reception apparatus,

wherein the first control information is permitted to be periodically transmitted to the information reception apparatus, when the information reception apparatus does not receive the main information;

a fifth transmission control step of changing the second state of transmission apparatus to a fourth state indicating that the transmission apparatus is permitted to transmit a multiplexed signal including the main information with an error packet and the first control information to the information reception apparatus via the network, when the second control information indicates that an error has occurred in the received information; and

a sixth transmission control step of changing the fourth state of transmission apparatus to the third state, when the second control information indicates that a predetermined amount of errors have occurred in the received information.

3. (Canceled)

4. (Previously Presented) The information transmission apparatus according to claim 1, wherein the transmission means transmits the first control information with the main information when the transmission means transmits the main information.

5. (Previously Presented) The information transmission apparatus according to claim 1, wherein the transmission means transmits the first control information at a predetermined time interval.

6. (Previously Presented) The information transmission apparatus according to claim 1, wherein the first and second control information are RTCP packet information.

7. (Previously Presented) The information transmission apparatus according to claim 1,

wherein if the second control information is information indicating a reception state at the information reception apparatus, the transmission control means determines that the second control information indicates a determination result that the information reception

apparatus receives the main information and permits the transmission means to transmit the main information to the information reception apparatus via the network.

8. (Original) The information transmission apparatus according to claim 7,
wherein the reception state is represented by a state of occurrence of an error in
the main information received by the information reception apparatus.

9. (Currently Amended) An information transmission method of an information
transmission apparatus connected to an information reception apparatus via a network, the
method comprising:

a generation step of generating first control information for making a request to
the information reception apparatus for transmission of a result of a determination as to whether
the information reception apparatus receives main information,

wherein the first control information is a protocol between the information
transmission apparatus and the information reception apparatus and functions as a protocol
independently of a type of the network;

a transmission step of transmitting the main information and the first control
information generated by the processing in the generation step to the information reception
apparatus via the network;

a reception step of receiving, via the network, second control information
transmitted from the information reception apparatus as a response to the first control
information transmitted by the processing in the transmission step, the second control

information indicating a result of a determination as to whether the information reception apparatus receives the main information;

a first transmission control step of prohibiting the main information from being transmitted to the information reception apparatus if the second control information received by the processing in the reception step indicates a first determination result that the information reception apparatus does not receive the main information or permitting the main information to be transmitted to the information reception apparatus via the network if the second control information indicates a second determination result that the information reception apparatus receives the main information,

a second transmission control step of keeping the transmission apparatus in a first state indicating that neither the main information nor the first control information is transmitted to the information reception apparatus;

a third transmission control step of keeping the transmission apparatus in the second state indicating that the transmission apparatus is permitted to transmit the main information to the information reception apparatus when the second control information indicates that no error has occurred in the received information;

a fourth transmission control step of changing the second state of transmission apparatus to a third state indicating that the transmission apparatus is prohibited from transmitting the main information to the information reception apparatus,

wherein the first control information is permitted to be periodically transmitted to the information reception apparatus, when the information reception apparatus does not receive the main information;

a fifth transmission control step of changing the second state of transmission apparatus to a fourth state indicating that the transmission apparatus is permitted to transmit a multiplexed signal including the main information with an error packet and the first control information to the information reception apparatus via the network, when the second control information indicates that an error has occurred in the received information; and

a sixth transmission control step of changing the fourth state of the transmission apparatus to the third state, when the second control information indicates that a predetermined amount of errors have occurred in the received information.

10. (Currently Amended) A recording medium having a program recorded thereon, the program enabling a computer to execute a control method for controlling an information transmission apparatus connected to an information reception apparatus via a network, the control method comprising:

a generation step of generating first control information for making a request to the information reception apparatus for transmission of a result of a determination as to whether the information reception apparatus receives main information,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a transmission step of transmitting the main information and the first control information generated by the processing in the generation step to the information reception apparatus via the network;

a reception step of receiving, via the network, second control information transmitted from the information reception apparatus as a response to the first control information transmitted by the processing in the transmission step, the second control information indicating a result of a determination as to whether the information reception apparatus receives the main information;

a first transmission control step of prohibiting the main information from being transmitted to the information reception apparatus if the second control information received by the processing in the reception step indicates a first determination result that the information reception apparatus does not receive the main information or permitting the main information to be transmitted to the information reception apparatus via the network if the second control information indicates a second determination result that the information reception apparatus receives the main information,

a second transmission control step of keeping the transmission apparatus in a first state indicating that neither the main information nor the first control information is transmitted to the information reception apparatus;

a third transmission control step of keeping the transmission apparatus in the second state indicating that the transmission apparatus is permitted to transmit the main information to the information reception apparatus when the second control information indicates that no error has occurred in the received information;

a fourth transmission control step of changing the second state of transmission apparatus to a third state indicating that the transmission apparatus is prohibited from transmitting the main information to the information reception apparatus,

wherein the first control information is permitted to be periodically transmitted to the information reception apparatus, when the information reception apparatus does not receive the main information;

a fifth transmission control step of changing the second state of transmission apparatus to a fourth state indicating that the transmission apparatus is permitted to transmit a multiplexed signal including the main information with an error packet and the first control information to the information reception apparatus via the network, when the second control information indicates that an error has occurred in the received information; and

a sixth transmission control step of changing the fourth state of transmission apparatus to the third state, when the second control information indicates that a predetermined amount of errors have occurred in the received information.

11. (Currently Amended) A non-transitory computer-readable medium encoded with a computer program code, that when executed by a computer processor controls an information reception apparatus, the program code comprising:

a generation step of generating first control information for making a request to the information reception apparatus for transmission of a result of a determination as to whether the information reception apparatus receives main information,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a transmission step of transmitting the main information and the first control information generated by the processing in the generation step to the information reception apparatus via the network;

a reception step of receiving, via the network, second control information transmitted from the information reception apparatus as a response to the first control information transmitted by the processing in the transmission step, the second control information indicating a result of a determination as to whether the information reception apparatus receives the main information;

a first transmission control step of prohibiting the main information from being transmitted to the information reception apparatus if the second control information received by the processing in the reception step indicates a first determination result that the information reception apparatus does not receive the main information or permitting the main information to be transmitted to the information reception apparatus via the network if the second control information indicates a second determination result that the information reception apparatus receives the main information,

a second transmission control step of keeping the transmission apparatus in a first state indicating that neither the main information nor the first control information is transmitted to the information reception apparatus;

a third transmission control step of keeping the transmission apparatus in the second state indicating that the transmission apparatus is permitted to transmit the main information to the information reception apparatus when the second control information indicates that no error has occurred in the received information;

a fourth transmission control step of changing the second state of transmission apparatus to a third state indicating that the transmission apparatus is prohibited from transmitting the main information to the information reception apparatus,

wherein the first control information is permitted to be periodically transmitted to the information reception apparatus, when the information reception apparatus does not receive the main information;

a fifth transmission control step of changing the second state of transmission apparatus to a fourth state indicating that the transmission apparatus is permitted to transmit a multiplexed signal including the main information with an error packet and the first control information to the information reception apparatus via the network when the second control information indicates that an error has occurred in the received information; and

a sixth transmission control step of changing the fourth state of transmission apparatus to the third state, when the second control information indicates that a predetermined amount of errors have occurred in the received information.

12. (Currently Amended) An information reception apparatus connected to an information transmission apparatus for transmitting main information via a network, comprising:

reception means for receiving the main information and first control information transmitted from the information transmission apparatus via the network, the first control information making a request for transmission of a result of a determination as to whether the main information is received,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

generation means for determining whether the main information transmitted from the information transmission apparatus that has transmitted the first control information is received when the first control information is received by the reception means and generating second control information indicating a result of the determination;

transmission means for transmitting the second control information generated by the generation means to the information transmission apparatus via the network; and

reception control means,

for keeping the reception means in a first reception state indicating that the reception means rejects to receive the main information from the transmission apparatuses and periodically receives the first control information transmitted from the information transmission apparatus, when the information reception apparatus does not receive the main information;

for keeping the reception means in a second reception state indicating that the reception means has not received, but is ready for receiving the main information from the transmission apparatuses when the information reception apparatus does not receive the main information;

for changing the second reception state of reception means to a third reception state indicating that reception means is receiving the main information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information; and

for keeping the reception means in the third reception state indicating that reception means is receiving a multiplexed signal including the main information and the first control information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information, or when the second control information indicates the information reception apparatus does not receive the main information, or when the second control information indicates that an error has occurred in the received information.

13. (Original) The information reception apparatus according to claim 12, wherein

the information reception apparatus is connected to a first information transmission apparatus and to a second information transmission apparatus via the network;

the generation means determines that the main information transmitted from the second information transmission apparatus is not received when the first control information is received from the second information transmission apparatus while the main information transmitted from the first information transmission apparatus is being received by the reception means, and generates second control information indicating a result of the determination; and

the transmission means transmits the second information generated by the generation means to the second information transmission apparatus via the network.

14. (Original) The information reception apparatus according to claim 12, wherein the first and second control information are RTCP packet information.

15. (Original) The information reception apparatus according to claim 12, wherein the generation means generates information indicating a reception state at the information reception apparatus as the second control information when a determination is made that the main information is received.

16. (Original) The information reception apparatus according to claim 15, wherein the reception state is represented by a state of occurrence of an error in the main information received by the reception means.

17. (Currently Amended) An information reception method of an information reception apparatus connected to an information transmission apparatus for transmitting main information via a network, comprising:

a reception step of receiving the main information and first control information transmitted from the information transmission apparatus via the network, the first control information making a request for transmission of a result of a determination as to whether the main information is received,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a generation step of determining whether the main information transmitted from the information transmission apparatus that has transmitted the first control information is

received when the first control information is received by the processing in the reception step and generating second control information indicating a result of the determination;

a transmission step of transmitting the second control information generated by the processing in the generation step to the information transmission apparatus via the network;

a first reception control step of keeping the reception apparatus in a first reception state indicating that the reception apparatus rejects to receive the main information from the transmission apparatuses and periodically receives the first control information transmitted from the information transmission apparatus, when the information reception apparatus does not receive the main information;

a second reception control step of keeping the reception apparatus in a second reception state indicating that the reception apparatus has not received, but is ready for receiving the main information from the transmission apparatuses when the information reception apparatus does not receive the main information;

a third reception control step of changing the second reception state of reception apparatus to a third reception state indicating that reception apparatus is receiving the main information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information; and

a fourth reception control step of keeping the reception apparatus in the third reception state indicating that reception means is receiving a multiplexed signal including the main information and the first control information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information, or when the second control information indicates the information reception apparatus does not

receive the main information, or when the second control information indicates that an error has occurred in the received information.

18. (Currently Amended) A recording medium having a program recorded thereon, the program enabling a computer to execute a control method for controlling an information reception apparatus connected to an information transmission apparatus for transmitting main information via a network, the control method comprising:

a reception step of receiving the main information and first control information transmitted from the information transmission apparatus via the network, the first control information making a request for transmission of a result of a determination as to whether the main information is received,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a generation step of determining whether the main information transmitted from the information transmission apparatus that has transmitted the first control information is received when the first control information is received by the processing in the reception step and generating second control information indicating a result of the determination;

a transmission step of transmitting the second control information generated by the processing in the generation step to the information transmission apparatus via the network,

a first reception control step of keeping the reception apparatus in a first reception state indicating that the reception apparatus rejects to receive the main information from the

transmission apparatuses and periodically receives the first control information transmitted from the information transmission apparatus, when the information reception apparatus does not receive the main information;

a second reception control step of keeping the reception apparatus in a second reception state indicating that the reception apparatus has not received, but is ready for receiving the main information from the transmission apparatuses when the information reception apparatus does not receive the main information;

a third reception control step of changing the second reception state of reception apparatus to a third reception state indicating that reception apparatus is receiving the main information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information; and

a fourth reception control step of keeping the reception apparatus in the third reception state indicating that reception means is receiving a multiplexed signal including the main information and the first control information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information, or when the second control information indicates the information reception apparatus does not receive the main information, or when the second control information indicates that an error has occurred in the received information.

19. (Currently Amended) A non-transitory computer-readable medium storing computer program code, the program code when executed by a computer processor controls an information system, the program code comprising:

a reception step of receiving main information and first control information transmitted from the information transmission apparatus via the network, the first control information making a request for transmission of a result of a determination as to whether the main information is received,

wherein the first control information is a protocol between the information transmission apparatus and the information reception apparatus and functions as a protocol independently of a type of the network;

a generation step of determining whether the main information transmitted from the information transmission apparatus that has transmitted the first control information is received when the first control information is received by the processing in the reception step and generating second control information indicating a result of the determination;

a transmission step of transmitting the second control information generated by the processing in the generation step to the information transmission apparatus via the network,

a first reception control step of keeping the reception apparatus in a first reception state indicating that the reception apparatus rejects to receive the main information from the transmission apparatuses and periodically receives the first control information transmitted from the information transmission apparatus, when the information reception apparatus does not receive the main information;

a second reception control step of keeping the reception apparatus in a second reception state indicating that the reception apparatus has not received, but it is ready for receiving the main information from the transmission apparatuses when the information reception apparatus does not receive the main information;

a third reception control step of changing the second reception state of reception apparatus to a third reception state indicating that reception apparatus is receiving the main information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information; and

a fourth reception control step of keeping the reception apparatus in the third reception state indicating that reception means is receiving a multiplexed signal including the main information and the first control information from the transmission apparatuses when the second control information indicates that no error has occurred in the received information, or when the second control information indicates the information reception apparatus does not receive the main information, or when the second control information indicates that an error has occurred in the received information.

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